

APPLICATION FOR A PERMIT FOR SCIENTIFIC PURPOSES
UNDER THE ENDANGERED SPECIES ACT

Attachment E

**HUDSON RIVER BIOLOGICAL MONITORING PROGRAM
NMFS-ESA SCIENTIFIC RESEARCH PERMIT PERSONNEL**

Curriculum Vitae

Hudson River Biological Monitoring Program NMFS Permitted Research [shortnose sturgeon] Program Personnel				
ESA - NMFS Functional Title	Affiliation	Employer Functional Title	Participant Name	CV Supplied (✓)
Applicant / Permit Holder	Entergy Nuclear Operations, Inc	N/A	N/A	N/A
Responsible Party (RP)	Entergy Nuclear Operations Inc	Vice President	John Ventosa	N/A
Principal Investigator	Normandeau Associates, Inc.	Vice President - Principal Aquatic Ecologist	Mark T. Mattson, Ph	✓
Primary Contact and Co-investigator (CI)	Entergy Nuclear Indian Point 2, LLC and Entergy Nuclear Indian	Supervisor - Chemistry	Dara F. Gray	✓
Co-investigator (CI)	GenON Bowline, LLC	Environmental Engineer	Christine Croyle	✓
Co-investigator (CI)	Normandeau Associates, Inc.	Sr. Field Crew Leader / Boat Captain	Christopher Burnett	✓
Co-investigator (CI)	Normandeau Associates, Inc.	Fisheries Crew Leader	William R. Furman	✓
Co-investigator (CI)	Normandeau Associates, Inc.	Program Manager/ Field Operations Manager	Michael J. Ricci	✓
Co-investigator (CI)	Normandeau Associates, Inc.	Sr. Field Crew Leader / Boat Captain	Scott M. Schanke	✓
Co-investigator (CI)	Normandeau Associates, Inc.	Sr. Field Crew Leader / Boat Captain	Charles Sweeney	✓

MARK T. MATTSON, Ph.D.

Vice President/Principal Aquatic Ecologist

Dr. Mattson is a Vice President and Principal Aquatic Ecologist at Normandeau who has supervised or conducted more than 75 fisheries and aquatic ecology projects over the past 32 years. He is a specialist in aquatic ecology/ fisheries field sampling design and in the application of population and community level statistics to measure anthropogenic effects on aquatic ecosystems. Dr. Mattson has also presented testimony on Clean Water Act §316 issues and on the development and application of periphyton and benthic macroinvertebrate community biocriteria to narrative water quality classification including designated uses and antidegradation.

SELECTED PROJECT EXPERIENCE

Entergy Nuclear Northeast, Inc. (2010-Present) – Laboratory flume and field studies to evaluate the effectiveness of cylindrical wedgewire screens as the best technology available (BTA) to reduce entrainment of fish eggs and larvae at the Indian Point Nuclear Power Plant located on the Hudson River (NY). Project Manager and report author.

Entergy Nuclear Northeast, Inc. (2006-Present) – Provided technical assistance and litigation support in the areas of fisheries and aquatic ecology of the Hudson River for the Nuclear Regulatory Commission (NRC) Environmental Report, Environmental Site Audit, and Environmental Impact Statements for the §401 certification of the Indian Point Nuclear Power Plant located on the Hudson River (NY). Project Manager and Report Author.

Entergy Nuclear Northeast, Inc. (2009-present) – Impingement abundance and survival performance studies of newly installed Ristroph traveling screens, and hydroacoustic and fisheries monitoring for an alternative technology assessment specified by a renewed SPDES permit for the James A. FitzPatrick Nuclear Power Plant located on Lake Ontario (NY). Project Manager.

Entergy Nuclear Vermont Yankee, Inc. (2005-Present) - Preparation of a Clean Water Act Section 316(b) Proposal for Information Collection (PIC) and Comprehensive Demonstration Study (CDS) in response to the regulations governing operation of the cooling water intake structure at the Vermont Yankee Nuclear Power Generating Station located on the Connecticut River (VT). Project Manager and Report Author.

Entergy Nuclear Northeast, Inc. (2009-2011) – Estuarine tri-axial thermal plume survey to measure and map water temperature distribution and tidal current speed and direction among 50 fixed stations in the Hudson River (NY) near the thermal discharge from the Indian Point Nuclear Power Plant. Project Manager.

Entergy Nuclear Northeast, Inc. (2010) – Tri-axial thermal plume survey to measure and map water temperature distribution in Lake Ontario (NY) near the offshore thermal discharge from the James A. FitzPatrick Nuclear Power Plant. Project Manager.

Olympus Power Operations, Inc. (2010-present) – Entrainment characterization study to evaluate the effectiveness of 2 mm cylindrical wedgewire screens at reducing the entrainment of fish eggs and larvae from the East River into the Brooklyn Navy Yard Cogeneration facility, Brooklyn, NY. Corporate Officer.

AES Somerset, LLC (2011) – Tri-axial thermal plume survey to measure and map water temperature distribution in Lake Ontario near the offshore thermal discharge from the Somerset Generating Station (NY). Program Manager.

EDUCATION

Ph.D. 1979, Zoology (Limnology),
University of New Hampshire
M.S. 1975, Zoology, University of New
Hampshire
B.A. 1973, Biology, University of
Connecticut

PROFESSIONAL EXPERIENCE

1981-Present Normandeau Associates
1979-1981 Texas Instruments Inc.,
Ecological Services

PROFESSIONAL AFFILIATIONS

American Fisheries Society
American Society of Limnology and
Oceanography
International Limnological Society
Hudson River Environmental Society

AES Westover, LLC (2010) – Tri-axial thermal plume survey to measure and map water temperature distribution in Susquehanna River Lake Ontario near the thermal discharge from the Westover Generating Facility (NY). Program Manager.

American Sugar Refining Company (2009-2010) – Estuarine tri-axial thermal plume survey and 316b compliance services for the Domino refinery located on the Hudson River near Yonkers (NY). Report Author.

Entergy Nuclear Northeast, Inc. (2006-2008) – Provided technical assistance in the areas of fisheries and aquatic ecology for the Nuclear Regulatory Commission (NRC) Environmental Report and Environmental Site Audit for the re-licensing of the James A. FitzPatrick Nuclear Power Plant located on Lake Ontario (NY). Project Manager.

Entergy Nuclear Northeast, Inc. (2005-2008) - Preparation of a Clean Water Act Section 316(b) Proposal for Information Collection (PIC) and Comprehensive Demonstration Study (CDS) in response to the regulations governing operation of the cooling water intake structure at the James A. FitzPatrick Nuclear Power Plant located on Lake Ontario (NY). Project Manager and Report Author.

Entergy Nuclear Northeast, Inc. (2005-2008) - Preparation of a Clean Water Act Section 316(b) Proposal for Information Collection (PIC) and Comprehensive Demonstration Study (CDS) in response to the regulations governing operation of the cooling water intake structure at the Pilgrim Nuclear Power Station located on the Atlantic Ocean (Cape Cod Bay) (MA). Project Manager and Report Author.

Public Service Company of New Hampshire, Inc. (2005-2009) - Preparation of a Clean Water Act Section 316(b) Proposal for Information Collection (PIC) and Comprehensive Demonstration Study (CDS) in response to the regulations governing operation of the cooling water intake structure at Merrimack Station located on the Merrimack River (NH). Report Author.

Public Service Company of New Hampshire, Inc. (2005-2008) - Preparation of a Clean Water Act Section 316(b) Proposal for Information Collection (PIC) and Comprehensive Demonstration Study (CDS) in response to the regulations governing operation of the cooling water intake structure at Newington Station located on the Piscataqua River (Great Bay Estuary) (NH). Report Author.

Newburgh Yacht Club (2010) – Prepared an Essential Fish Habitat (EFH) assessment and Shortnose Sturgeon Habitat Assessment and Conservation Plan for a proposed dredging project at the marina on the Hudson River at Newburgh, NY. Program Manager.

Cornwall Yacht Club (2008) – Prepared an Essential Fish Habitat (EFH) assessment and Shortnose Sturgeon Habitat Assessment and Conservation Plan for a proposed dredging project at the marina on the Hudson River at Cornwall-on-Hudson, NY. Program Manager.

Tarrytown Former MGP Site Remediation Project (2004) – Prepared and implemented a Shortnose and Atlantic Sturgeon Conservation Plan that deployed and maintained a barrier net exclusion device during dredging and shoreline stabilization construction on the Hudson River at Tarrytown, NY. Corporate Officer.

Public Service Company of New Hampshire, Inc. (2005-2008) - Preparation of a Clean Water Act Section 316(b) Proposal for Information Collection (PIC) and Comprehensive Demonstration Study (CDS) in response to the regulations governing operation of the cooling water intake structure at Schiller Station located on the Piscataqua River (Great Bay Estuary) (NH). Report Author.

Broadwater Energy (2005-2008) – Provided field sampling, laboratory services, and technical advice for an entrainment and impingement assessment during the FERC licensing of the proposed Broadwater Floating Storage and Re-gasification Unit (FSRU) LNG terminal located in the Central Basin of Long Island Sound (NY). Corporate Officer.

Public Service Company of New Hampshire (1994-1996; 2003-Present) – Merrimack Station hydrothermal demonstration in support of NPDES requirements for accessing potential impacts on yellow perch, American shad Atlantic salmon, and other representative important species. Project Biologist.

Entergy Nuclear Vermont Yankee, Inc. (2002-Present) - Environmental support services for NPDES, indirect discharge, solid waste and biological monitoring programs at the Vermont Yankee Nuclear Power Generating Station (VT). Project Manager.

Entergy Nuclear Operations, Inc. (2001-Present) - Hudson River Striped Bass Program (NY). Project Manager.

Entergy Nuclear Operations, Inc. (2001-Present) - Hudson River Atlantic tomcod Program (NY). Project Manager.

Entergy Nuclear Operations, Inc. (2001-Present) - Hudson River Ichthyoplankton and Juvenile Fish Surveys field and laboratory services (NY). Corporate Officer.

Entergy Nuclear Vermont Yankee, Inc. (2002-2008) – Preparation of a Clean Water Act Section 316(a) Demonstration and litigation support for a request for increased discharge temperatures at the Vermont Yankee Nuclear Power Generating Station (VT). Project Manager and Report Author.

Covanta Mid-Connecticut, Inc. (2003-2005) – Connecticut Resource Recovery Authority generating station evaluation of existing and proposed new Clean Water Act Section 316(b) rules for existing facilities – an entrainment and impingement evaluation (CT). Project Manager.

Somerset Operations (MA) (2001-2004) – Two-year evaluation of impingement, entrainment and the thermal plume at this existing generating station. Corporate Officer.

New York Power Authority (NY) (2001-2003) – Charles Poletti Power Plant Effects of Entrainment and Impingement Program. Ichthyoplankton, Juvenile Fish Trawl Surveys; Cunner and Tautog Mark-Recapture Program in Long Island Sound, New York Harbor, and the Hudson River. Project Manager and Technical Director.

Pratt and Whitney East Hartford (CT) (2000 - 2003) – Two-year evaluation of impingement, entrainment and the thermal plume at the Wilgoos facility on the Connecticut River (CT). Project Manager.

Bridgeport Energy LLC Facility (CT, Bridgeport Harbor) (2000 - 2003) – Two-year evaluation of impingement, entrainment and the thermal plume at this new generating station. Corporate Officer.

Vermont Yankee Nuclear Power Corporation (VT) (1996-2002) - Environmental support services for NPDES, indirect discharge, solid waste and biological monitoring programs at the Vermont Yankee Nuclear Power Generating Station. Project Manager.

Shering-Plough Corporation (NJ) (1999-2001) - Biological assessment of the endangered Dwarf Wedge Mussel (*Alasmidonta heterodon*) in the Paulins Kill River (Sussex Co., NJ). Project Manager.

New York Department of Environmental Conservation (NY) (1998-2008) - Hudson River Herring Spawning Stock Assessment. Technical Director.

New York Department of Environmental Conservation (NY) (2001-2005) - Hudson River Recreational Fisheries Creel Surveys, 2001-2002 and 2005. Corporate Officer.

New York Department of Environmental Conservation (NY) (2003-2004) - Hudson River Blue Crab Overwintering survey. Corporate Officer.

New York Department of Environmental Conservation (NY) (2003-2005) - Hudson River American Shad and Striped Bass Age and Growth Laboratory Study. Corporate Officer.

New York Department of Environmental Conservation (NY) (1999-2001) - Aquatic Biological sample collections for contaminants analysis from New York Harbor and the Hudson River. Corporate Officer.

New York Power Authority (1984-1994; 1997-2001) - Hudson River Striped Bass Stock Assessment Program (NY). Project Manager.

New York Power Authority. (1982-1994; 1997-2001) - Hudson River Atlantic Tomcod Spawning Stock Survey (NY). Project Manager.

Consolidated Edison Company of New York, Inc. (1988-1989, 1991-2001) - Hudson River Ichthyoplankton Laboratory Program (NY). Corporate Officer.

Consolidated Edison Company of New York, Inc. (1984-1989, 1991-2001) - Hudson River Ichthyoplankton and Juvenile Surveys (NY). Corporate Officer.

Pratt and Whitney Middletown (CT) (2000) – Cooling water intake screen evaluation to determine applicability of Best Management Practices (BMP) to demonstrate the use of Best Technology Available (BTA) with respect to impingement and entrainment at the Middletown manufacturing facility on the Connecticut River (CT). Project Manager.

Public Service Electric & Gas Company (1996-2000) - Salem Station (NJ) Delaware Bay-wide monitoring fisheries studies for the Estuarine Enhancement Program. Corporate Officer.

Public Service Electric & Gas Company (1996-1998) - Hudson Station (NJ) supplemental 316(a) and 316(b) biological studies. Project Manager.

Eckenfelder, Inc. (1995-1998) - Phase II RFI studies for adjacent surface water sediments AOC for the Ciba-Geigy site located on the Hudson River in Glens Falls (NY). Project Manager.

Wisconsin Public Service Corporation (1996) - Oconto Electric Hydroelectric Project (WI) Fish Entrainment and Turbine Mortality Study. Project Manager.

Dairyland Power Reservoir Productivity Study (1995-1996) - Reservoir productivity study in support of hydropower relicensing on the Flambeau River (WI). Project Manager.

Wisconsin Public Service Corporation (1994-1995) - Wausau Hydroelectric Project (WI) Fish Entrainment and Turbine Mortality Studies. Project Manager.

Wisconsin Public Service Corporation (1992-1994) - Grand Rapids Hydroelectric Project (WI) Fish Entrainment and Turbine Mortality Studies. Project Manager.

Great Northern Paper Co. (1986-1992) - Penobscot Mills and Ripogenus Dam Hydropower Relicensing Projects (ME). Project Aquatic Ecologist.

Empire State Electric Energy Research Corp. (1990-1991) - Demonstration of an Acoustic Fish Deterrence System at the James A. Fitzpatrick Nuclear Power Plant Cooling Water Intake (NY). Project Manager.

Niagara Mohawk Power Corp. (1990-1991) - Fish Guidance Study at Albany Steam Station (NY). Project Manager/Technical Advisor.

Central Hudson Gas and Electric Corp. (1989-1991) - Roseton and Danskammer Point Stations Impingement Monitoring Program (NY). Project Manager.

Consolidated Edison Company of New York, Inc. (1984-1986, 1989-1991) - Indian Point Impingement Studies (NY). Project Manager.

Consolidated Edison Company of New York, Inc. (1985-1991) - Indian Point Nuclear Generating Station Ristroph Screen Impingement Mitigation Study (NY). Project Manager.

Wisconsin Public Service Corporation (1990) - Nine Hydroelectric Facilities (WI) Fish Turbine Entrainment/Mortality Study Plans. Project Manager.

New York Power Authority (1990) - Indian Point Unit 3 Nuclear Power Plant Zebra Mussel Monitoring Project. Project Manager.

Central Hudson Gas & Electric Corp. (1990) - Zebra Mussel Monitoring at Roseton and Danskammer Point Stations. Project Manager.

Central Hudson Gas & Electric Corp. (1990) - Survey of Hudson River Marinas for the Presence of Zebra Mussels. Project Manager.

The Upjohn Company (1982, 1987-1990) - Quinnipiac River Study (CT). Project Aquatic Ecologist.

New York Power Authority (1986-1990) - Indian Point Fish Deterrence Studies (NY). Corporate Officer/Technical Reviewer.

Consolidated Edison Company of New York, Inc. (1989) - Relative Probability of Entrainment Study for Indian Point Station (NY). Project Manager.

Consolidated Central Hudson Gas and Electric Corp. (1986-1988) - Danskammer Point Station Fine Mesh Fish Impingement Studies (NY). Project Manager.

Consolidated Edison Company of New York, Inc. (1986-1987) - Special Studies to Examine Fish Abundance in Unsampled Areas of the Hudson River (NY). Project Manager.

Consolidated Edison Company of New York, Inc. (1986-1987) - Indian Point Entrainment Abundance Studies (NY). Technical Advisor.

Consolidated Edison Company of New York, Inc. (1984-1985) - 1982 and 1983 Year Class Reports for the Hudson River Monitoring Program (NY). Technical Reviewer.

Orange and Rockland Utilities, Inc. (1983-1985) - Hudson River White Perch Stock Assessment Study (NY). Project Manager.

Great Northern Paper Company (1981-1985) - Hydroelectric Development Project (ME). Project Aquatic Ecologist.

New York Power Authority (1980-1985) - Hudson River Gear Evaluation Studies (NY). Project Manager.

Bangor Hydro Basin Mills Hydroelectric Project (ME) (1983-1984) - Project Aquatic Ecologist.

Consolidated Edison Company of New York, Inc. (1981-1984) - Sampling Design Evaluation for Indian Point Fish Impingement Programs (NY). Project Manager.

Metropolitan District Commission (1982-1983) - Water Supply Alternatives (MA). Project Aquatic Ecologist.

Bangor Hydro Telos Dam Reconstruction Project (ME) (1982) - Project Aquatic Ecologist.

Consolidated Edison Company of New York, Inc. (1981-1982) - Indian Point Juvenile Fish Entrainment Study (NY). Project Manager.

Chicopee Falls Hydropower Project (MA) (1981) - Project Aquatic Ecologist.

Town of Concord (MA) (1981) - Water Supply Study. Project Aquatic Ecologist.

SPECIAL TRAINING

NAUI Certified SCUBA diver

U.S. Fish and Wildlife Instream Flow Incremental Methodology Negotiations and Strategies, 1981; Conducting Field Studies, 1984

SELECTED PRESENTATIONS

Mattson, M.T., J.R. Young, B.P. Lindsay, and J.L. Black. 2011. Larval Avoidance Enhances the Entrainment Reduction Performance of Cylindrical Wedgewire Screens. 141st Annual Meeting of the American Fisheries Society, Seattle, WA, 1-8 September 2011.

Mattson, M.T., D.G. Trested, R. Simmons, C. Swanson, and A.G. Palmer. 2011. Atlantic salmon smolt downstream migration past Merrimack Station's thermal plume. EPRI Third Thermal Ecology and Regulations Workshop: October 11-12, 2011, Maple Grove, MN.

Gurshin, C.W.D., M.T. Mattson, and K. Hattala. Spawning stock characteristics of alewife (*Alosa pseudoharengus*) and blueback herring (*Alosa aestivalis*) in the Hudson River estuary. American Fisheries Society 136th Annual Meeting. Lake Placid, NY. 10-14 Sep 2006.

Smith, J.D., M.T. Mattson, and V. Thompson. 2006. Using computational fluid dynamics to determine the hydraulic zone of influence for ichthyoplankton and juvenile fish sampling areas in the vicinity of the James A. FitzPatrick Plant cooling water intake structure in Lake Ontario. Presentation at the EPRI and UWAG conference on 316(b) issues, to be held in Atlanta, Georgia, 6-7 September 2006.

Mattson, M.T. and D.J. Dunning. 2004. Mitigation value of a striped bass hatchery in the Hudson River Estuary. Presentation at the Symposium on Ecological Restoration under Section 316(b) of the Clean Water Act: Issues in Implementation. 134th Annual Meeting of the American Fisheries Society, Madison, Wisconsin, 22-26 August 2004.

Mattson, M.T. J.R. Young, K.A. Hattala, and A. Kahnle. 2003. Abundance index trends in alewife and blueback herring populations of the Hudson River Estuary. Presentation at: Hudson River Fishes & Their Environment. Hudson River Environmental Society conference held 20-21 March 2003 at Marist College, Poughkeepsie, NY.

Mattson, M.T. J.R. Young, and Q.E. Ross. 2002. Atlantic tomcod in the Hudson River Estuary. Presentation at the Symposium on Hudson River Fisheries. 132th Annual Meeting of the American Fisheries Society, Baltimore, Maryland, August 2002.

Geoghegan, P., M. T. Mattson, D. J. Dunning and Q. E. Ross. 1986. Effects of water temperature, collection gear, and tag type on handling mortality of striped bass. Presented at the 1986 Northeast Fish and Wildlife Conference, Hershey, Pennsylvania USA.

Mattson, M. T., D. J. Dunning and Q. E. Ross. 1985. Relative catch efficiency of a 3 m beam trawl, 6.2 m high-rise trawl and 1.0 m epibenthic sled for sampling young of the year striped bass and other fishes in the Hudson River Estuary. American Fisheries Society, August 1985.

Mattson, M. T. and J. B. Waxman. 1985. Movements of spawning Atlantic tomcod (*Microgadus tomcod*) in the Lower Hudson River, Northeast Fish and Wildlife Conference; May 1985.

SELECTED PEER-REVIEWED ARTICLES AND PUBLICATIONS

Dunning, D.J., J.R. Waldman, Q.E. Ross and M.T. Mattson. 2006. Dispersal of age 2+ striped bass out of the Hudson River. Pages 287-294 in J.R. Waldman, K.E. Limburg, and D.L. Strayer, editors. Hudson River fishes and their environment. American Fisheries Society, Symposium 51. Bethesda, Maryland.

Dunning, D.J., Q.E. Ross, M.T. Mattson, and D.G. Heimbuch. 2006. Distribution and abundance of bay anchovy eggs and larvae in the Hudson River and nearby waterways. Pages 215-226 in J.R. Waldman, K.E. Limburg, and

D.L. Strayer, editors. Hudson River fishes and their environment. American Fisheries Society, Symposium 51. Bethesda, Maryland.

Dunning, D.J., J.R. Waldman, Q.E. Ross and M.T. Mattson. 1997. Use of Atlantic Tomcod and other prey species by striped bass in the lower Hudson River estuary during winter. *Trans. Am. Fish. Soc.* 236(5): 857-861.

Dunning, D.J., Q.E. Ross, W.L. Kirk, J.R. Waldman, D.G. Heimbuch and M.T. Mattson. 1992. Post juvenile striped bass studies after the settlement agreement. In: C.L. Smith ed., *Estuarine Research in the 1980s*. State University of New York Press. p.338-347.

Geoghegan, P., M.T. Mattson, J.J. Reichle and R.G. Keppel. 1992. Influence of salt front position on the occurrence of uncommon marine fishes in the Hudson River Estuary. *Estuaries* 15(2): 251-254.

Geoghegan, P., M. T. Mattson, and R. Keppel. 1992. Distribution of the shortnose sturgeon in the Hudson River Estuary, 1983-1988. In: C.L. Smith ed., *Estuarine Research in the 1980s*. State University of New York Press. p. 217-227.

Mattson, M.T., M.L. Hutchins, P.L. Harmon, and C.J. Swanson. 2004. Probability-based impact assessment for a §316(a) demonstration: an example from Entergy Nuclear Vermont Yankee. Chapter 13 in *Proceedings from the EPRI Workshop on 316(a) Issues: Technical and Regulatory Considerations: October 16-17 2003*, EPRI Palo Alto, CA and American Electric Power Company, Columbus, OH: 2004. 1008476.

Mattson, M.T., P. Geoghegan, D.J. Dunning. 1992. Accuracy of catch per unit effort indices of Atlantic tomcod in the Hudson River. In: C.L. Smith ed., *Estuarine Research in the 1980s*. State University of New York Press. p. 323-338.

Waldman, J. R., D. J. Dunning, and M. T. Mattson. 1991. Long-term retention of anchor tags and internal anchor tags by striped bass. *North American Journal of Fisheries Management*, 11: 232-234.

Humphreys, M., M. T. Mattson, R.E. Park, J.J. Reichle, D.J. Dunning and Q.E. Ross. 1990. Stocking checks on scales for identifying hatchery striped bass in the Hudson River. *American Fisheries Society Symposium* 7: 78-83.

Waldman, J. R., D. J. Dunning, Q. E. Ross, and M. T. Mattson. 1990. Range dynamics of Hudson River striped bass along the Atlantic coast. *Transactions of the American Fisheries Society* 119: 910-919.

Waldman, J. R., D. J. Dunning and M. T. Mattson. 1990. A morphological explanation for size-differential anchor tag loss in Hudson River striped bass. *Transactions of the American Fisheries Society* 119: 920-923.

Mattson, M.T., J.R. Waldman, D.J. Dunning, and Q.E. Ross. 1989. Abrasion and protrusion of internal anchor tags in Hudson River striped bass. *American Fisheries Society Symposium* 7:121-126.

Dunning, D.J., Q.E. Ross, M.T. Mattson, P. Geoghegan, and J.R. Waldman. 1989. Reducing mortality of striped bass captured in seines and trawls. *North American Journal of Fisheries Management*, 9(2): 171-176.

Geoghegan, P., M.T. Mattson, D.J. Dunning and Q.E. Ross. 1989. Improved data through quality control and quality assurance in a large scale striped bass tagging program. *American Fisheries Society Symposium* 7: Fish Marking Techniques.

Mattson, M.T., D.J. Dunning, Q.E. Ross and B.R. Friedman. 1989. Magnetic tag detection efficiency in a Hudson River striped bass hatchery evaluation program. *American Fisheries Society Symposium* 7: 267-277.

Mattson, M.T., J.B. Waxman and D.A. Watson. 1988. Reliability of impingement sampling designs: an example from Indian Point Station. *American Fisheries Society Monograph* 4:161-169.

Dunning, D.J., Q.E. Ross, J.R. Waldman, and M.T. Mattson. 1987. Tag retention and tagging mortality in Hudson river striped bass. *North American Journal of Fisheries Management*, 8(4): 535-538.

Mattson, M. T. 1980. Diel and seasonal horizontal movements in a population of the predatory cladoceran *Polyphemus pediculus*. American Society of Limnology and Oceanography, December 1980.

Mattson, M. T. and J. F. Haney. 1980. Factors influencing intrazooplankton predation by *Polyphemus pediculus*, Research Report No. 29. Water Resources Research Center, University of New Hampshire, Durham, NH. 149 pp.

In addition, Dr. Mattson has contributed to over 30 technical reports in the areas of aquatic ecology and sampling design.



Dara F. Gray, REM

Chemistry/Environmental Supervisor

Indian Point Energy Center

(914) 254-8414

DGray@Entergy.com

Dara F. Gray is Chemistry Supervisor at Entergy's Indian Point Station, responsible for all station environmental programs, at the dual unit station. Since 2001, Ms. Gray has served as the site Environmental Supervisor, a position which has included oversight of the Hudson River Biological Monitoring Program. Ms. Gray will fulfill the role of Primary Contact and Co-investigator with regard to National Marine Fisheries Service—Endangered Species Act—permitted research activities

After graduating from SUNY Purchase College, in 1980, D. Gray joined Dames and Moore, Environmental and Engineering Consultants, as an Environmental Scientist. She assumed additional responsibilities over time and was responsible for all field Health and Safety for the international firm.

In 1995, D. Gray joined the New York Power Authority as a Radiological Environmental Engineer at their Indian Point 3 facility. Over time, she assumed responsibility for all the facility's environmental programs. This included technical program oversight and implementation for air, water, waste, chemical and oil management programs, all environmental permitting, and the direct supervision of one to four technical specialists, as well as budgeting and other administrative duties.

When Entergy purchased Indian Point 3 in 2000 and Indian Point 2 in

D. Gray earned a BA in Environmental Sciences in 1980 from SUNY Purchase College and an MS in Management Science from Pace University's Lubin School of Business in 1998. She is a Registered Environmental Manager with the National Registry of Environmental Professionals.

**Contact Information**

Christine Croyle
Environmental Engineer
Bowline Generating Station
140 Samsondale Avenue
West Haverstraw, NY 10993
P 845.786.8008
C 914.772.0274
Christine.croyle@genon.com

Education

Bachelors of Science in Chemical Engineering, Manhattan College, 2001

Experience

Ms. Croyle is the Environmental Engineer at the Bowline Generating Station ("Bowline") and will be a co-investigator for Entergy Nuclear Northeast for the Hudson River Biological Monitoring Program. Ms. Croyle is responsible for overall environmental compliance at Bowline, as well as providing oversight for the barrier net installed in the Bowline Pond.

On behalf of GenOn, Ms. Croyle will on occasion review field and laboratory SOPs, reports, and NMFS-related communications pertaining to the Hudson River Biological Monitoring Program.

CHRISTOPHER BURNETT**Senior Field Crew Leader/Boat Captain**

Mr. Burnett is experienced in large and small boat handling and navigation, fisheries sampling gear deployment and water quality instrumentation.

EDUCATION

1976-1977 New England College
1975 South Kent School

PROFESSIONAL EXPERIENCE

1989-Present Normandeau Associates

SELECTED PROJECT EXPERIENCE

Hudson River (NY) (1989-1994, 1997-Present) - Striped Bass Hatchery Evaluation/Atlantic Tomcod Stock Assessment Program. Crew Leader. – Boat Captain. Bottom trawling both NY harbor and lower Hudson River.

Roseton and Danskammer Impingement Monitoring Program (NY) (1993-Present) - Crew Leader.

Bowline and Lovett Impingement Monitoring Program (NY) (1991-Present) - Crew Leader.

Hudson River (NY) (1989-Present) - Ichthyoplankton and Fall Juvenile Surveys. Field Crew Leader-Boat Captain Beam trawl and Tucker trawl survey Troy Dam to NY Harbor.

Charles Poletti Power Plant Effect of Entrainment and Impingement (NY, Long Island Sound) (2002) - Ichthyoplankton, trawling and Mark-Recapture studies on Long Island Sound, East River, New York Harbor and the Hudson River. Senior Field Crew Leader – Boat Captain.

Evaluation of Marking and Capture Techniques for Cunner and Tautog for the Charles Poletti Power Project (CT, Bridgeport Harbor and Long Island Sound) (2001) - Evaluated marking and capture methods to determine the most effective handling and marking procedures for implementing a multi-year mark-recapture study. Senior Field Crew Leader.

Fish and Ichthyoplankton Monitoring at the Bridgeport Energy LLC Facility (CT, Bridgeport Harbor) (2000-2001) - Impingement, Entrainment and Harbor Ichthyoplankton and bottom trawls- Fish and Crabs. Senior Field Crew Leader.

Indian River Power Plant 316(c), 316(b) Demonstration Study (Del, Indian River) (1999-2001) – Impingement and Entrainment Sampling. Ichthyoplankton trawling; Bottom trawling. Senior Field Crew Leader.

Connecticut Yankee Radiological Environmental Monitoring Program (CT, Connecticut River) (2000) – Air, water, sediment and fish collections. Senior Field Crew Leader.

Baywide Finfish Monitoring Program (NJ, Delaware Bay) (1996-1999) – Ichthyoplankton and Fish and Crab Sampling. Crew Leader – Boat Captain.

Hudson Station 316(a), 316(b) Demonstration Study (NJ, Hackensack River) (1996) - Biological Assessment. Crew Leader. Impingement ; Ichthyoplankton trawling ; Bottom trawling on Newark bay , Kill van Kull, Arthur Kill, Hackensack River.

Arthur Kill Station (NY, Staten Island) (1993-1995) - Impingement and Survival Studies. Senior Field Crew Leader.

Baseline Fisheries Survey for the St. Lawrence Power Project (1994) - Crew Leader.

East River, Ravenswood and Arthur Kill Generating Stations (NY) (1993) - Impingement and Entrainment Studies. Senior Field Crew Leader.

East River, Ravenswood and Arthur Kill Generating Stations (NY) (1993) - Impingement and Entrainment Studies.

Indian Point Nuclear Generating Station (NY) (1989-1990) - Impingement Studies.

WILLIAM R. FURMAN**Fisheries Field Crew Leader**

Mr. Furman is experienced in impingement and entrainment sampling and fish identification.

SELECTED PROJECT EXPERIENCE

Hudson River Ichthyoplankton and Fall Juvenile Surveys (NY) (1989-Present) - Responsible for the sample work-up, identification and enumeration of juvenile fish samples, and data collection. Crew Leader.

Hudson River Striped Bass Hatchery Evaluation/Atlantic Tomcod Stock Assessment Program (NY) (1989-Present) - Responsible for sample enumeration, striped bass tagging and data collection. Crew Leader.

Arthur Kill Generating Station (NY) - (2006-2007) - Responsible for the collection of impingement, entrainment and water samples. Identified and enumerated impingement samples in the field. Crew Leader.

Con Edison East River Generating Station (NY) (2005-2006) - Responsible for the collection of impingement, entrainment and water samples. Identified and enumerated impingement samples in the field. Crew Leader.

Connecticut Yankee Radiological Environmental Monitoring Program (CT) (2003-2005) - Responsible for collecting air particulate, river water and vegetation samples for the Haddam Neck Plant of Connecticut Yankee Atomic Power Company. Crew Leader.

Hudson River American Shad and Striped Bass Population Assessment (NY) (1995) - Responsible for leading a field crew that collected, measured, weighed and tagged adult American shad and striped bass for a mark and recapture study to assess population abundance in the Hudson River. Fish were collected at several locations along 75-100 miles of the river using a 500 foot haul seine. Crew Leader.

Bowline and Lovett Stations Impingement Monitoring Programs (NY) (1991-1992) - Responsible for the collection and enumeration of impingement samples. Crew Leader.

C.R. Huntley Generating Station Biological Monitoring Program (NY) (1990-1991) - Responsible for the collection of impingement and entrainment samples at a fossil fuel power plant. Identified and enumerated impingement samples in the field. Conducted water quality sampling. Crew Leader.

Indian Point Nuclear Generating Station Impingement Studies (NY) (1989-1990) - Responsible for supervision of field crews, collection, identification and enumeration of fishes as part of daily impingement monitoring. Included collection efficiency experiments, fish survival testing and water quality sampling. Crew Leader.

EDUCATION

1988 Cornwall High School

PROFESSIONAL EXPERIENCE

1988-Present Normandeau Associates

MICHAEL J. RICCI**Program Manager/Field Operations Manager**

Mr. Ricci has over 39 years of extensive, hands-on experience in the supervision and management of large and complex field operations. Mr. Ricci has developed innovative sampling gear and techniques for safe and efficient completion of large field programs and is presently Field Operation Manager for Normandeau Associates.

EDUCATION

A.A.S. 1972, Marine Science, Southern
Maine Vocational Technical
Institute

PROFESSIONAL EXPERIENCE

1981-Present Normandeau Associates
1972-1981 Texas Instruments,
Ecological Services
Group

SELECTED PROJECT EXPERIENCE

Hudson River Testing of Cylindrical Wedgewire Screen
Effectiveness at Indian Point Energy Center (NY) (2011-Present) – Management of field crews in collection of Ichthyoplankton and water quality samples. Field Operations Manager.

Biological Monitoring to Assess Extension of the Cooling Water Intake Structure at the James A. Fitzpatrick Nuclear Power Plant (NY) (2009-Present) – Hydroacoustic, Ichthyoplankton, Gill Netting and Mid-water trawling. Field Operations Manager.

Biological Monitoring to Evaluate Installation and Verification of a Fish Handling and Return System at the James A. Fitzpatrick Nuclear Power Plant (NY) (2009-Present) – Design and installation of collection equipment for Impingement and Survival studies. Field Operations Manager.

Hudson River Ichthyoplankton Survey and Fall Juvenile Surveys (NY) (1991-Present) – Ichthyoplankton and juvenile fish sampling. Program Manager/Field Operations Manager.

Hudson River Striped Bass and Atlantic Tomcod programs (NY) (1985-Present) – Stock Assessment Program. Field Operations Manager.

Lake Ontario Studies at James A. Fitzpatrick Nuclear Power Plant (NY) (2006-2007) – Entrainment, ichthyoplankton and gill net sampling. Field Operations Manager.

Roseton and Danskammer Point (NY) (1988-1991, 1993-Present) - Impingement Monitoring Program. Field Operations Manager.

Bowline and Lovett (NY) (1991-Present) - Impingement monitoring program. Field Operations Manager.

Arthur Kill Generating Station (NY) (2006-2007) - Impingement and entrainment studies. Field Operations Manager.

East River Generating Station (NY) (2005) - Impingement and entrainment studies. Field Operations Manager.

Connecticut Yankee Radiological Environmental Monitoring Program (CT, Connecticut River) (2000-2005) – Air, water, sediment and fish collections. Field Operations Manager.

Charles Poletti Power Plant Effect of Entrainment and Impingement (NY, Long Island Sound)(2002) - Ichthyoplankton, trawling and mark-recapture studies on Long Island Sound, East River, New York Harbor and the Hudson River. Field Operations Manager.

Fish, Ichthyoplankton, and Thermal Monitoring at the NRG Energy Somerset Power Station (MA, Tauton River) (2000-2002) – Impingement, entrainment thermal mapping and river ichthyoplankton collections. Field Operations Manager.

Entrainment, Ichthyoplankton, and Impingement Monitoring at the Pratt & Whitney Facility (CT, East Hartford) (2001) - Entrainment, ichthyoplankton and impingement study design. Field Operations Manager.

Evaluation of Marking and Capture Techniques for Cunner and Tautog for the Charles Poletti Power Project (CT, Bridgeport Harbor and Long Island Sound)(2001) - Evaluated marking and capture methods to determine the most effective handling and marking procedures for implementing a multi-year mark-recapture study. Field Operations Manager.

Fish and Ichthyoplankton Monitoring at the Bridgeport Energy LLC Facility (CT, Bridgeport Harbor) (2000-2001) – Impingement, Entrainment and Harbor Ichthyoplankton and bottom trawls. Program Manager.

Indian River Power Plant 316(c), 316(b) Demonstration Study (DE, Indian River) (1999-2001) – Impingement and Entrainment Sampling. Field Operations Manager.

Baywide Finfish Monitoring Program (NJ, Delaware Bay) (1996-2000) - Program Manager/Field Operations Manager.

Hastings-On-Hudson Fish and Sediment Collection Service (NY, Hudson River) (1999) – Fish and sediment sampling. Program Manager.

Parsons Engineering Science (1996-1998) – Pfizer Entrainment Study (CT). Field Operations Manager.

Hudson Station 316(a), 316(b) Demonstration Study (NJ, Hackensack River) (1996) - Biological Assessment. Field Operations Manager.

Milwaukee Harbor (WI) (1996) - Tier 3 Sediment Sampling and Analysis. Program Manager/Crew Chief.

Detroit River (MI) (1995) - Collection and Analyses of Sediment. Program Manager/Crew Chief.

Alpena and Harrisville Harbors (MI, Lake Huron) (1995) - Sampling and Analyses of Sediments. Program Manager.

Manitowoc Harbor (WI, Lake Michigan)(1995) - Sampling and Analyses of Sediments. Program Manager.

Cornucopia (Wisconsin), Ontonagon, Little Lake (MI, Lake Superior) (1995) - Sampling and Analyses of Sediments. Program Manager.

River Raisin (MI) (1995) - Sampling and Analyses of Sediments. Program Manager.

Lake Macatawa (Holland, Michigan) (1995) -Column Settling Test Samples. Program Manager/Crew Chief.

New Bedford Harbor (MA) (1995) - Long Term Monitoring Project. Field Operations Manager/Crew Chief.

St. Clair River (MI) (1995) - Collection and Analyses of Sediment. Program Manager.

Lake St. Clair (MI) (1995) - Collection and Storage of Sediment Samples. Program Manager.

Lower Clinton River (MI) (1995) - Sampling and Analyses of Sediment. Program Manager.

Duluth-Superior Harbor, Minnesota and Wisconsin (WI, Lake Superior) (1995) -Environmental Sampling and Testing. Program Manager.

Clinton River Watershed (MI) (1995) - Sampling and Analyses of Sediments. Program Manager.

Detroit River (MI) (1995) - Collection of Fish Samples. Program Manager.

Saginaw River (MI) (1995) - Sampling of Sediments. Program Manager.

Dairyland Power Cooperative Reservoir (WI, Flambeau River) (1995) - Productivity Study. Field Operations Manager.

Arthur Kill Station (NY, Staten Island) (1993-1995) - Impingement and Survival Studies. Field Operations Manager.

Providence River and Harbor Maintenance Dredging (RI) (1994) - Environmental Studies. Field Operations Manager.

Sugarbush Ski Area EIS (VT) (1994) - Crew Chief.

Wausau Hydroelectric Project (MI) (1994) - Fish Entrainment and Turbine Mortality Studies. Field Operations Manager/Task Leader.

New York City Dept. Environmental Protection (1993-1994) – New York City Water Supply Zebra Mussel Monitoring Program. Program Manager.

Wisconsin Public Service Corp. (1992-1994) – Grand Rapids Hydro Entrainment and Turbine Mortality Study. Report Author.

Grand Rapids Hydroelectric Project (WIS) (1992-1994) - Fish Entrainment and Turbine Mortality Studies. Field Operations Manager/Task Leader.

East River, Ravenswood and Arthur Kill Generating Stations (NY) (1993) - Impingement and Entrainment Studies. Program Manager/Field Operations Manager.

New Bedford Harbor (MA) (1993) - Long Term Monitoring Project. Field Operations Manager/Crew Chief.

Lowell and Lawrence Hydroelectric (MA) (1992) - Downstream Passage Studies. Crew Leader.

Boston Harbor (MA) (1992) - Dredging Improvement Project. Field Operations Manager.

Boston Edison Pilgrim Station (MA) (1992) -Maintenance Dredging. Field Operations Manager.

C.R. Huntley Generating Station (NY, Niagara River) (1990-1991) - Biological Monitoring Studies. Field Operations Manager.

Hudson River (NY) (1981-1991) - Fisheries Studies. Field Operations Supervisor.

Dunkirk Steam Station (NY, Lake Erie) (1990) - Biological Monitoring Program. Field Operations Manager.

Fish Turbine (WI) (1990) - Entrainment/ Mortality Study Plan. Field Operations Manager.

Hudson River (NY) (1980-1981) - Ecological Studies. Field Operations Task Leader.

Hudson River (NY) (1974-1979) - Ecological Studies. Field Operations Coordinator.

Hudson River (NY) (1977-1978) - Ecological Studies. Laboratory Supervisor.

BLM (winter cruise) (1976-1977) - Environmental Benchmark Study. Crew Member.

Long River (NY) (1973-1975) - Ichthyoplankton Survey. Field Laboratory Technician.

Hudson River (NY) (1972-1973) - Ecological Studies. Vessel Operator.

SPECIAL TRAINING

U.S.C.G. Masters License (100 gross tons)

American Red Cross Adults CPR and Standard First Aid

Maintenance and repair of Detroit, Caterpillar, and Perkins marine engines

Work boat deck gear rigging, deployment, and maintenance

SCOTT M. SCHANKE

Senior Field Crew Leader/Boat Captain

Mr. Schanke graduated with degrees in both Aquatic Biology and Broad Field Science and earned honors in both fields. Mr. Schanke also holds a 100 Ton Masters License and has 15 years of practical maritime experience operating vessels from 16 to 65 ft. His experience includes both day and night operation of research vessels, fisheries gear deployment, and water quality instrumentation.

SELECTED PROJECT EXPERIENCE

Entergy Nuclear Northeast, Inc. (2006-Present) – Bimonthly collection of Ichthyoplankton samples via Tucker Trawls as well as 24 hour Gill Net samples. Field Crew Leader/Boat Captain.

Hudson River (NY) (2002-Present) - Striped Bass Hatchery Evaluation/Atlantic Tomcod Stock Assessment Program. Bottom trawling both NY harbor and lower Hudson River. Crew Leader/Boat Captain.

Hudson River Ichthyoplankton and Fall Juvenile Surveys (NY) (2002-Present) - Hudson River Ichthyoplankton and Juvenile fish collection via Tucker, Epibenthic Sled and Beam Trawls. Field Crew Leader/Boat Captain.

Hudson River (NY) (2002-Present) – Striped Bass Hatchery Evaluation / Atlantic Tomcod Stock Assessment Program. Boat Captain/ Field Crew Leader.

Hudson River (NY) (2002–Present) – Striped Bass Aging Program.

Arthur Kill Station (NY, Staten Island) (2006-2007) - Impingement and Survival Studies. Field Crew Leader.

NYSDEC (2003-2004) - Striped Bass Aging Program.

Upper Niagara River Creel Survey (NY) (2003) – Creel and Aerial Surveys, Data Management, Weekly Reports, Personnel Coordination and Scheduling. Senior Field Crew Leader.

Fish and Ichthyoplankton Monitoring at the Bridgeport Energy LLC Facility (CT, Bridgeport Harbor) (2002) – Impingement, Entrainment and Harbor Ichthyoplankton and bottom trawls. Boat Captain/Senior Field Crew Leader.

Hudson River Ichthyoplankton Survey and Fall Juvenile surveys (NY) (2002) - Boat Captain/Senior Field Crew Leader.

Charles Poletti Power Plant Effect of Entrainment and Impingement (NY, Long Island Sound)(2002) - Ichthyoplankton, trawling and Mark-Recapture studies on Long Island Sound, East River, New York Harbor and the Hudson river. Boat Captain/Senior Field Crew Leader.

Lake Superior (WI) (2000-2001) – Length at age comparisons between Isle Royale lake trout vs. Western End Superior lake trout. Undergraduate solo research.

EDUCATION

B.S. 2001, Aquatic Biology, University of Wisconsin Superior, Cum Laude

B.S. 2001, Broad Field Science, University of Wisconsin Superior, Magna Cum Laude

PROFESSIONAL EXPERIENCE

2002-Present Normandeau Associates
2000-2001 Grand Portage Isle

Royale Transportation
Line, Mate / Relief
Captain

2000-2001 U.W. Superior, Student
Assist

1996-2000 Isle Royale Resorts,
Charter Captain

SPECIAL TRAINING

U.S.C.G. Masters License (100 gross tons)

American Red Cross Adult CPR

Otolith and scale processing and aging techniques

Work boat deck gear rigging, deployment and maintenance

Preventative maintenance of outboard and inboard/outboard gasoline engines

Preventative maintenance of inboard diesel Engines

CHARLES SWEENEY**Senior Field Crew Leader/Boat Captain**

Mr. Sweeney is experienced in both day and night operation of large and small boats. His background includes navigation and gear deployment.

EDUCATION

1983-1984 State University of New York at Cortland

PROFESSIONAL EXPERIENCE

1985-Present Normandeau Associates

SELECTED PROJECT EXPERIENCE

Hudson River (NY) (1985-1994, 1997-Present) - Striped Bass Hatchery Evaluation/Atlantic Tomcod Stock Assessment Program. Crew Leader/Boat Captain. Bottom trawling both NY harbor and lower Hudson River.

Baywide Finfish Monitoring Program (NJ, Delaware Bay) (1996-Present) - Crew Leader.

Hudson River Ichthyoplankton and Fall Juvenile Surveys (NY) (1986-1989, 1991, 1992, 1994-Present) - Hudson River Ichthyoplankton. Senior Field Crew Leader/Boat Captain.

Arthur Kill Station (NY, Staten Island) (1993-1995, 2006-2007) - Impingement and Survival Studies. Field Crew Leader.

New Bedford Harbor (MA) (1994-1995, 2004) - Long Term Monitoring Project. Field Crew Leader/Boat Captain.

Charles Poletti Power Plant Effect of Entrainment and Impingement (NY, Long Island Sound) (2002)- Ichthyoplankton, trawling and Mark-Recapture studies on Long Island Sound, East River, New York Harbor and the Hudson river. Senior Field Crew Leader/Boat Captain.

Evaluation of Marking and Capture Techniques for Cunner and Tautog for the Charles Poletti Power Project (CT, Bridgeport Harbor and Long Island Sound)(2001) - Evaluated marking and capture methods to determine the most effective handling and marking procedures for implementing a multi-year mark-recapture study. Senior Field Crew Leader.

Fish and Ichthyoplankton Monitoring at the Bridgeport Energy LLC Facility (CT, Bridgeport Harbor) (2000-2001) – Impingement, Entrainment and Harbor Ichthyoplankton and bottom trawls- Fish and Crabs. Senior Field Crew Leader/Boat Captain.

Central Hudson Impingement Study (NY) (1990-2000) – Crew Leader.

Baywide Finfish Monitoring Program (NJ, Delaware Bay) (1996-1999) – Ichthyoplankton and Fish and Crab Sampling. Crew Leader/Boat Captain.

Biological Assessment for Hudson Station 316(a), 316(b) Demonstration Study (NJ, Hackensack River (1996) – Senior Crew Leader/Boat Captain.

Providence River and Harbor Maintenance Dredging (RI) (1994) - Environmental Studies. Field Crew Member.

Wausau Hydroelectric Project (MI) (1994) - Fish Entrainment and Turbine Mortality Studies. Crew Member.

East River, Ravenswood, and Arthur Kill Generating Stations (1993) - Impingement and Entrainment Studies. Crew Member.

Lowell and Lawrence Hydroelectric (MA) (1992) - Downstream Passage Studies. Crew Leader.

C.R. Huntley Generating Station Plume Study (NY) (1990-1991) – Crew Leader.

Indian Point Nuclear Generating Station (NY) (1985, 1986, 1989, 1990) - Impingement Monitoring Program.
Field Crew Leader and Crew Member.

Indian Point Nuclear Generating Station (NY) (1985) - Entrainment Monitoring Program. Crew Member.

SPECIAL TRAINING

40-Hour Course in Hazardous Waste Site Activities

United States Coast Guard Licensed Captain.

Master of motor vessels of not more than 50 gross tons upon inland water.